

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE SPECIFICATION

The specification has been amended to correct a minor informality of which the undersigned has become aware. In addition, the abstract has been amended as required by the Examiner to be fewer than 150 words.

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered, and that the objection to the specification be withdrawn.

THE CLAIMS

Claims 1 and 3-14 have been amended to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to more clearly recite the features of the present invention in better U.S. form.

In addition, new independent claim 15 has been added to recite similar subject matter to amended independent claim 1, except that new independent claim 15 recites the feature of a package case and that the at least one of the input and output optical waveguide is arranged such that light input to or output

from the signal light monomode optical fiber is inclined at a desired angle with respect to at least one of the side faces of the substrate and the side faces of the package case.

New claim 16 recites subject matter previously recited in (now canceled) claim 3.

New claims 17 and 18 are directed to embodiments wherein the at least one of the input optical waveguide and the output optical waveguide is arranged such that the light input to or output from the signal light monomode optical fiber is input in a direction parallel to the side faces of the substrate and/or package case. And new claims 19 and 20 are directed to embodiment wherein the signal light monomode optical fiber is attached to one of the side faces of the substrate such that it has a portion adjoining the attached side face which is parallel to the side faces of the substrate and/or side faces of the package case. These embodiments are described in the specification at, for example, at page 21, line 18 to page 22, line 12, and page 31, line 22 to page 32, line 19.

Still further, new claims 21 and 22 have been added to recite the feature of the present invention whereby both the input optical waveguide and the output optical waveguide are arranged to form an angle other than 0° with the functional optical waveguides connected thereto.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered, and that the rejection of the claims under 35 USC 112, second paragraph, be withdrawn.

CLAIM FEE

The application was originally filed with 14 claims of which 1 was independent. The application now contains 21 claims, of which 2 are independent. Accordingly, a claim fee in the amount of \$50.00 for the addition of one extra claim in total is attached hereto. In addition, authorization is hereby given to charge any additional fees which may be determined to be required to Account No. 06-1378.

THE PRIOR ART REJECTION

Claims 1 and 6-11 were rejected under 35 USC 102(a) as being anticipated by US 2003/0147591 ("Doi et al") and claims 5 and 12-14 were rejected under 35 USC 103 as being unpatentable over Doi et al.

According to the present invention as recited in amended independent claims 1 and 15, an waveguide type optical device is provided which includes a signal light monomode optical fiber having an end located opposite to an input optical waveguide or an output optical waveguide on a substrate at an optical input

end face of the substrate or an optical output end face of the substrate. At least one of the input optical waveguide and the output optical waveguide is arranged to form an angle other than 0° with a functional optical waveguide connected thereto between the input and output optical waveguides on the substrate (i.e., such that the input optical waveguide and output optical waveguide are not coincident with the functional optical waveguide connected thereto). In addition, as recited in amended independent claims 1 and 15, the input and/or output optical waveguide is also arranged such that it is not perpendicular to the corresponding end face of the substrate.

Still further, amended independent claim 1 recites that at least one of the input and output optical waveguide is formed such that light input to or output from the signal light monomode optical fiber is inclined at a desired angle with respect to the corresponding side faces of the substrate. The side faces of the substrate are those opposed faces extending between the end faces, i.e., side faces 1c, 1d in Fig. 1.

And new independent claim 15 recites that the at least one of the input and output optical waveguide is formed such that light input to or output from the signal light monomode optical fiber is inclined at a desired angle with respect to at least one of the side faces of the substrate and the side faces of the package case.

The arrangement of the input and/or optical waveguides relative to the end faces and side faces of the substrate (and/or package case when present) alleviates a problem in the prior art relating to reliable positioning of the optical fiber. For example, in the prior art, it is a problem when light is output from a substrate end face at a slant or inclined to the direction of the side faces of the substrate (as well as the side faces of the package case) since the signal light monomode optical fiber must also be fixed at a slant to the substrate. As such, it is difficult and sometimes even impossible to position the optical fiber to enable it to be fixed to the substrate.

By contrast, the arrangement of the input optical waveguide and/or output optical waveguide in accordance with the claimed present invention enables inclination of the monomode optical fiber at a desired angle - that is, at an angle to aid in attachment of the monomode optical fiber to the substrate and retention thereto.

By contrast, in Doi et al, the input optical waveguide and the output optical waveguide are not arranged to form an angle other than 0° with the functional optical waveguides connected thereto and such that the input optical waveguide and the output optical waveguide is not perpendicular to the corresponding one of the substrate end faces. Instead, in Doi et al, the input optical waveguide 3a(3) is perpendicular to the end face while

the output optical waveguides 3e(3) and 3f(3) are each in alignment with the connecting functional optical waveguide - that is, the functional optical waveguide 3d(3) is coincident with waveguide 3f(3) while the functional optical waveguide 3c(3) is coincident with waveguide 3e(3). Such coincidence inherently creates an angle of 0° between the functional optical waveguide and the output optical waveguide.

In addition, in Doi et al, the input optical waveguide and the output optical waveguide are not arranged such that they are not perpendicular to the corresponding one of the substrate end faces, and such that the light input to or output from an optical fiber attached thereto is inclined at a desired angle with respect to the corresponding side face of the substrate. Instead, in Doi et al, the input optical waveguide 3a(3) is perpendicular to the end face and the output optical waveguides 3e(3) and 3f(3) are not at a desired angle relative to the side face of the substrate but rather must leave the substrate in the same direction as they travel through the functional optical waveguides 3c(3) and 3d(3).

In view of the foregoing, it is respectfully submitted that Doi et al clearly does not disclose, teach or suggest the structure of the waveguide type optical devices of the present invention as recited in amended independent claim 1 and new independent claim 15.

Still further, it is respectfully submitted that Doi et al also clearly does not disclose, teach or suggest the features of the present invention as recited in new claims 16-22.

Accordingly, it is respectfully submitted that amended independent claim 1, new independent claim 15, amended claims 2 and 4-14 depending respectively therefrom, and new claims 16-22 all patentably distinguish over Doi et al under 35 USC 102 as well as under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

/Douglas Holtz/

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